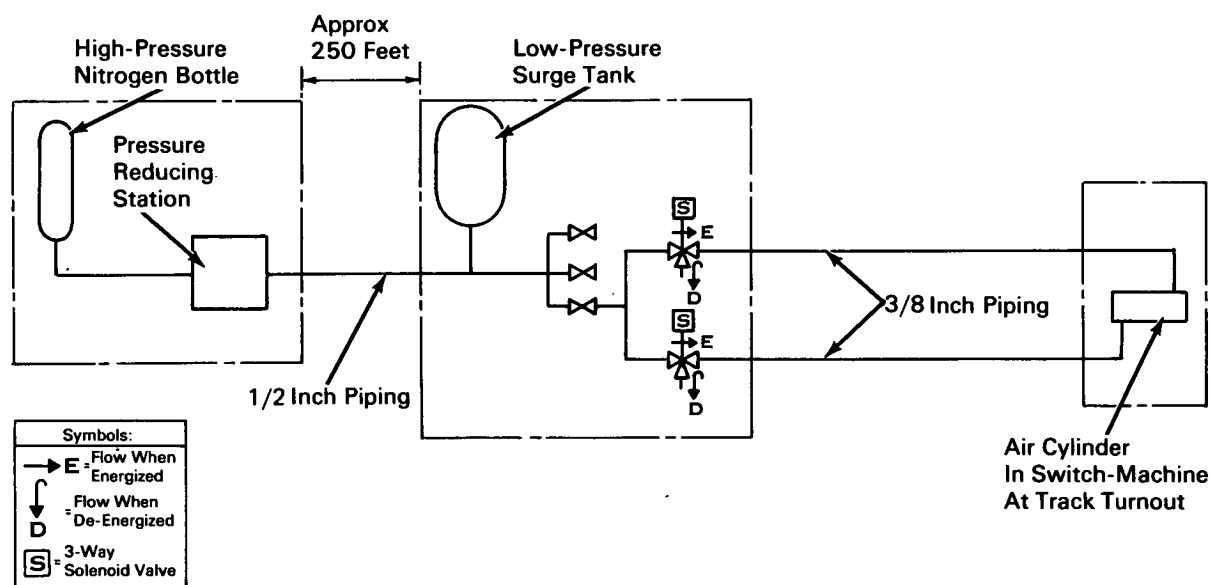


NASA TECH BRIEF



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Economical and Maintenance-Free Gas System Operates Railroad Switches



The problem:

To devise an economical and maintenance-free system of operating remotely located railroad switches. The infrequent operation of these switches makes the expense of conventional track-switching mechanisms (including compressors, receiver tanks, and drying systems) prohibitive.

The solution:

A system using bottled nitrogen gas as a source of power for operating the railroad switches.

How it's done:

The pneumatically operated turnout switch machines, which operate the railroad switches, are altered by removal of the solenoid valves and providing inlet and outlet connections for 3/8-inch copper piping.

The copper piping, running along the track on top of the railroad ties connects the solenoid valves (relocated away from the switch machines) to the switch machines. The solenoid valves are supplied low-operating-pressure gaseous nitrogen from a surge tank connected through a high-pressure system. As a safety measure the system, including two high-pressure nitrogen bottles, a pressure-reducing station, and valving, is located approximately 250 feet away from other areas. One-half-inch piping connects the high-pressure system with the low-pressure system.

Remote operation is provided by a timed holding circuit arrangement of the solenoid valves. To operate a switch machine, the proper electric switch is closed.

(continued overleaf)

This energizes a solenoid valve, admitting pressurized nitrogen to the switch machine, which moves the turnout points of the track to the desired position. After a preset time the holding circuit releases and the solenoid valve closes. The turnout points, held mechanically by the switch machine, remain in the position to which they have been switched. Another solenoid valve, part of a system similar to that described, can be energized to cause the switch machine to return the turnout points to their original positions.

Notes:

1. The system is noteworthy not only because of the economy and simplicity of the basic equipment, but also because the need for auxiliary support items, such as electric lines, is eliminated.

2. The gas system should be of interest to operators of commercial, industrial, and specialized railroads in hazardous areas.
3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion
Office
U.S. Atomic Energy Commission
Washington, D.C.
Reference: B66-10124

Patent status:

No patent action is contemplated by NASA.

Source: G. S. Vissing (NU-0045)